

REMARKS

This amendment is responsive to the Office Action mailed April 16, 2008. Reconsideration and allowance of **claims 1-13** are requested.

The Office Action

Claims 1-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Grundy et al. (U.S. Patent Application Publication No. 2005/0189640).

The Present Application

The present application is directed to a device with a body of an electrically insulated material having a first side and, opposite thereto, a second side, electric conductors which are anchored in the body being situated on the first side, wherein the body is provided with a recess extending from the first side to the second side. Additionally, the electric conductors comprise first, second, and third layers, wherein the electrically insulating material extends into cavities in the second layers to mechanically anchor the electric conductors in the body.

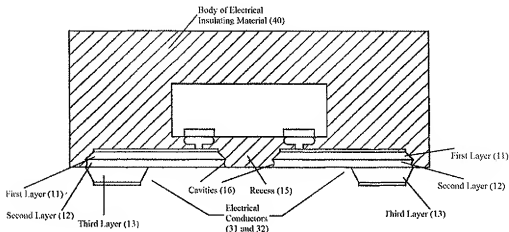
One objective of the present application is to increase the compactness of the assembly as well as mechanically anchor the electric conductors within the body of the structure. This compactness shields the electrical elements from the material flowing at the surface, enhances signal integrity, and reduces the electrical losses of the structure.

35 U.S.C. § 112

Claims 1-13 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner asserts that it is unclear and confusing to what is meant by and what shows "electric conductors which are mechanically anchored in the body being situated on the first side, the

electric conductors comprises first, second, and third layers, wherein the electrically insulating material extends into cavities between patterns in the second layer to mechanically anchor the electric conductors in the body situated on the first side, wherein the body is provided with a recess extending completely from the first side to the second side."

The Examiner states that it unclear what structure shows the first, second, and third layers. The claimed structure finds an illustrative example of antecedent basis of the first, second, and third layers of the electrical conductors in Figure 1 in the drawings. In reference to Figure 1, the electric conductors are reference characters 31 and 32. The first layers of the electric conductors are marked as reference character 11. The second layers of the electric conductors are marked as reference character 12 and directly below the first layer of the electric conductors. The third layers of the electric conductors are marked as reference character 13 and are directly below the second layer of the electric conductors and are below the body of insulating material.



Additionally, the examiner asks where the structure finds antecedent basis in the drawings. The structure of the device finds antecedent basis in Figure 1. The device 10 is provided with a body of electrically insulating material 40. The device additionally contains two electric conductors 31 and 32. Each electric conductor 31 and 32 comprises three different layers. A first layer 11, a second/intermediate layer 12, and a third layer 13. Between the patterns of second

layer 12 cavities 16 exist which mechanically anchor the electrical conductors 31 and 32 within the body 40. The cavities 16 in Figure 1 is a peripheral groove which is subsequently filled with the insulating material 40 which sets to mechanically anchored the second layer 12 of the electric conductors 31 and 32 into the solidified insulating material.

The Examiner also asks how the second layer mechanically anchors the electric conductors in which the second layer is part of. In the side walls of the second layers 12 of the electrical conductors 31 and 32 there are cavities in the form of concave channels marked as reference number 16. The electrically insulating material 40 fills the cavities 16 in its liquid state, and then sets to mechanically anchor the electric conductors 31 and 32 in the body of electrically insulating material 40.

Claim 1 with reference numbers illustrating antecedent basis for the claim elements would read:

A device (10) provided with

 a body of electrically insulating material (40) having

 a first side (101) and,

 opposite thereto, a second side (102),

 electric conductors (31,32) which are mechanically anchored in the body (40) being situated on the first side (101), the electric conductors (31,32) comprise first (11), second (12), and third layers (13),

 wherein the electrically insulating material extends into the cavities (16) between patterns (120) in the second layer (102) to mechanically anchor the electric conductors (31,32) in the body (40) situated on the first side (101),

 wherein:

 the body (40) is provided with a recess (15, 110) extending completely from the first side (101) to the second side (102), and

 a sectional area of the recess (15, 110) on the second side (102) is larger than a sectional area of the recess (15, 110) on the first side (101) of the device (10).

The References of Record

Grundy et al. is directed at a structure employed by a plurality of packages, printed circuit boards, connectors and interposers to create signal paths to reduce the deleterious signal quality issues associated with the use of through-holes. The structures incorporate stair-step packages allowing for the conveyance of multiple signal paths throughout the structure.

**The Claims Distinguish Patentably
Over the References of Record**

Claims 1-13 are have been rejected under 35 U.S.C. §103(a) as being unpatentable over **Grundy**. Applicants respectfully submit that this rejection is improper and/or erroneous. Accordingly, the rejection is hereby traversed.

More specifically, regarding **claim 1**, **Grundy** does not disclose the claimed device having “electric conductors which are mechanically anchored in the body being situated on the first side” and “wherein the electrically insulating materials extends into the cavities between patterns in the second layer to mechanically anchor the electric conductors in the body situated on the first side.” The Examiner refers Applicant to Figure 5 and reference characters 2, 2A, 8, and 7 which discloses a printed circuit board having incorporating stair step packages allowing for the conveyance of multiple signal paths. **Grundy** does not teach “electric conductors which are mechanically anchored in the body” and “wherein the electrically insulating material extends into the cavities between patterns in the second layer to mechanically anchor the electric conductors in the body situated on the first side.”

Additionally, the Examiner asserts that using the electric conductors and the first, second, and third layers would have been obvious to one of ordinary skill in the art as a obvious engineering choice as set forth in *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893), *In re Larson*, 144 USPQ 347 (CCPA 1965), and *In re Fridolph*, 135 USPQ 319 (CCPA 1962). In *Howard, Larson, and Fridolph* the courts found that the use of one piece construction instead of a multiple piece construction would have been a obvious engineering choice and would be not be given favorable patentability weight unless the one piece construction yield results not expected from the modification of the multiple piece structure into a single piece structure.

Favorable patentability weight should be given to **claims 1-13** because the single piece device yields results that cannot be obtained and that were not expected from the modification from a multiple piece construction of the device. By mechanically anchoring the electric conductor and the three layers of the conductor within the body of electrically insulated material the compactness of the assembly can be further increased. In addition, elements that are coupled to the electric conductor are immediately shielded from the material flowing at the surface. By increasing the compactness the signal integrity is enhanced and the loss of electricity is reduced.

Accordingly, it is submitted that independent **claim 1** and **claims 2-13** that depend therefrom, distinguish patentably over the references of record.

MPEP 2144.03

The applicant hereby traverses the Examiner's assertion that the use of three layers as claimed is a known equivalent to a single layer. Pursuant to MPEP 2144.03 the applicant puts the Examiner to his proofs to cite a reference that shows the obviousness of using three layers in the present context and combination.

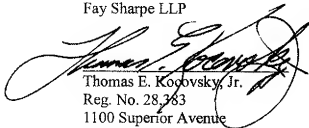
CONCLUSION

For the reasons set forth above, it is submitted that **claims 1-13** (all claims) distinguish patentably over the references of record and meet all statutory requirements. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he is requested to telephone Thomas E. Kocovsky at (216) 861-5582.

Respectfully submitted,

Fay Sharpe LLP

A large, stylized handwritten signature in black ink, which appears to read "Thomas E. Kocovsky, Jr.", is written over the typed name and address.

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